Bacteriophage T4 gene 25

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Gene 25 of bacteriophage T4 encodes an acidic protein of M_r 15,000, a structural component of the outer wedges of the phage base plate (1) with lysozyme activity (2). Marker rescue experiments suggested that it maps near coordinate 114 on the T4 map, immediately upstream of gene *uvsY* (3, 4, 5). We show here the complete sequence of gene 25, derived from several different T4 inserts cloned in pUC or M13 derived vectors and DNA extracted from T4 particles as templates. The sequence predicts a 132 amino acid residue peptide with a net charge of -6, consistent with the reported properties of gene product 25. Although gene 25 is a late gene, it is expressed in the counter-clockwise direction (4,5). The preliminary sequence upstream of gene 25 (up to position 237, determined, however, from only one clone), is most likely part of gene 26. A late transcript of approximately 2200 nucleotides (6), traverses gene 25 and terminates downstream of *uvsY*, suggesting that genes 26, 25 and *uvsY* can be cotranscribed from a late promoter between map coordinates 115 and 116.

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Ser Gly Tyr Pro Lys Ile Phe Asp Asp Lys Asn Ile Ala His Met Ile
1  T TCC GGA TAC CCT AAA ATT TTT GAT GAT AAA AAT ATA GCC CAC ATG ATA

Glu Thr Ile His Ala Asn Gly Glu Ser Ile Pro Val Glu Asp Leu Asn Glu
50 GTA TCA TGT ATA GAA ACG ATT CAT GCT AAC GGG GAA AGC ATT CCA GTT GAA

Asp Leu Asn Glu Lys Glu Leu Glu Asp Leu Tyr Ser Ile Ile Thr Glu Ser
101 GAC TTA AAT GAA AAG GAA CTA GAA GAT TTA TAT TCT ATC ATC ACA GAG TCA

Asp Ile Val Ala Ile Lys Asp Met Leu Leu Lys Pro Thr Val Tyr Leu Ala
152 GAT ATT GTA GCT ATA AAA GAT ATG CTT TTA AAG CCT ACC GTT TAT TTG GCT

Val Pro Ile Lys Cys Pro Glu Cys Gly Lys Thr His Ala His Val Ile Arg
203 GTT CCA ATT AAG TGT CCA GAG TGT GGA AAA ACC CAT GCT CAC GTA ATA AGA
ORF 25.1 (GENE 25?)
Gly Leu Lys Glu Phe Phe Glu Leu Leu Stop GENE 25
254 GGC CTC AAA GAG TTC TTT GAG TTA CTA TA ATG GCA AAT ATT AAT AAG CTT

Tyr Ser Asp Ile Asp Pro Glu Met Lys Met Asp Trp Asn Lys Asp Val Ser 24
304 TAT TCT GAT ATT GAC CCG GAA ATG AAA ATG GAT TGG AAC AAA GAC GTT TCC

Asp Ser Leu Gly Leu Arg Ser Ile Lys Asn Ser Leu Leu Gly Ile Thr 41
355 AGA TCG CTT GGA TTA AGG TCA ATT AAA AAC AGT CTT TTG GGA ATT ATT ACA

Thr Arg Lys Gly Ser Arg Pro Phe Asp Pro Glu Phe Gly Cys Asp Leu Ser 58
406 ACA AGA AAA GGT TCA AGA CCG TTT GAC CCT GAA TTT GGA TGT GAT TTA TCA

Asp Gln Leu Phe Glu Asn Met Thr Pro Leu Thr Ala Asp Thr Val Glu Arg 75
457 GAC CAG CTT TTT GAA AAT ATG ACT CTT CTT ACT GCT GAC ACG GTT GAA CGC

Asn Ile Glu Ser Ala Val Arg Asn Tyr Glu Pro Arg Ile Asp Lys Leu Ala 92
508 AAT ATC GAA AGC GCA GTA AGA AAC TAT GAG CCA CGT ATT GAT AAA TTA GCA

Val Asn Val Ile Pro Val Tyr Asp Asp Tyr Thr Leu Ile Val Glu Ile Arg 109
559 GTT AAT GTG ATA CCC GTT TAT GAC GAT TAT ACT CTG ATA GTA GAA ATA CGC

Phe Ser Val Ile Asp Asn Pro Asp Asp Ile Glu Gln Ile Lys Leu Gln Leu 126
610 TTT TCG GTC ATC GAT AAT CCT GAT GAT ATT GAG CAG ATA AAA CTG CAG CTG

Ala Ser Ser Asn Arg Val Stop middle promoter
661 GCT TCC AGT AAT AGA GTA TAATGCTTCACGTTAAACGTTGATATGA → uvsY
not box -10

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REFERENCES:

1. Berget, P.B. and J. King (1983) In Matthews, C.K. et al. editors, The Bacteriophage T4, ASM p.246-258.
2. Szewczyk, B., Bienkowska-Szewczyk, K. and Kozloff, L.M. (1986) Mol. Gen. Genet. **202**, 363-367.
3. Mattson, T., Houwe, G.V., Bolle, A., Selzer, G. and Epstein, R. (1977) Mol. Gen. Genet. **154**, 319-326.
4. Gruidl, M.E. and Mosig, G. (1986) Genetics **114**, 1061-1079.
5. Klaus, V.J. and Nivinskas, R.H. (1988) Genetika **24**, 42-52.
6. Gruidl, M.E. (1988) Ph.D. Dissertation, Vanderbilt University, Nashville, TN.